



SOUTHWEST RESEARCH INSTITUTE™

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Institute Quality Systems
Institute Calibration Laboratory
Phone: 210-522-5215 Fax 210-522-3692

Certificate of Calibration

Submitted By: DIV20

Address: TI

Contact: RON GREEN

Manufacturer Model: SARTORIUS 3808-MP8

Description: BALANCE

Serial No: 39030006

Asset No: 001444

Procedure: CLCP-WT-001, DEC/99

Work Order: 444054685

Date Issued: Jul 24, 2003

Calibration Date: Jul 23, 2003

****Calibration Due:** Jan 23, 2004

Calibration Location: B57

Environment: Temp. 63.0°F Hum. 73 %RH

***As Found:** IN TOLERANCE

***As Left:** IN TOLERANCE

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 1999 and ANSI/NCSL Z540-1-1994 which are equivalent to relevant requirements of the ISO 9000-1994 series of standards. This certificate may not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. The results of this calibration relate only to the individual instrument described above. This certificate shall not be used to claim product endorsement by the American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government.

Uncertainty evaluation includes the item under test and is calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM). The uncertainty represents an expanded uncertainty using a coverage factor of $k=2$ to approximate a 95% confidence level. The calibration process provides a Test Uncertainty Ratio (TUR) of less than or equal to 25% (4:1) of the test limit unless otherwise stated in remarks or an attachment.

*The client has sole responsibility for determination of in/out of tolerance or compliance/noncompliance. An in/out of tolerance opinion is provided for your convenience based only on the Test Instrument (TI) reading(s) and limits as reported. The reported uncertainty relates only to the results at the time of calibration and does not imply any short or long term stability of the TI.

**Calibration interval is determined by the client and does not assure the instrument will remain within tolerance until this date. Any number of factors may cause the instrument to be out of tolerance before the next calibration date.

Remarks: None

Standards Used

Asset	Manufacturer	Model	Description	Cal Due
001715	RICE LAKE	500G	WEIGHT, CLASS S	Jun 20, 04
002061	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 23, 04
002062	RICE LAKE	10KG	WEIGHT, CLASS 1	Jun 23, 04
006098	RICE LAKE	25KG	WEIGHT, CLASS 1	Jun 23, 04
001718	RICE LAKE	2KG	WEIGHT, CLASS 1	Jun 23, 04
002060	RICE LAKE	5KG	WEIGHT, CLASS 1	Jun 23, 04

Approved by: Walt Hill
Metrology Group Leader
m:\Nona21a1.rpt Rev date 15, August 02

Measurements by: Vince Morales
Metrology Technician

Southwest Research Institute

Calibration Laboratory

Calibration Data Sheet

Work Order 444054685	Mfr. Sartorius	Technician Vmorales
Asset No. 001444	Model 3808	Procedure CLCP-WT-001, 12/99
Serial No. 39030006	Type Balance	Cal Date 23-Jul-03

Location: Bldg. 57/ L102

Ambient Conditions: 63 F 73 %RH 14.28 PSIA

Operational Check: Limits +/- : 1.1 g Uncertainty: 0.1 g

STD Mass Load	As Found Indication	Instrument Error
30000.0 g	30003.5 g	3.5 g

Post Calibration Check:

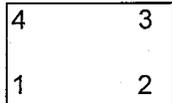
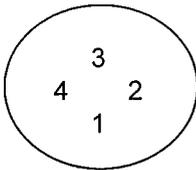
STD Mass Load	Post Calibration Indication	Instrument Error	Results
30000.0 g	29999.6 g	-0.4 g	Pass

Repeatability Check: Mass Load: 10000.0 g

1	9999.9 g	6	9999.9 g
2	9999.9 g	7	9999.9 g
3	9999.9 g	8	9999.9 g
4	9999.9 g	9	10000.0 g
5	9999.9 g	10	9999.9 g

Std Deviation	Tolerance
0.0 g	0.2 g

Off-Centerline Check: Mass Load: 10000.0 g Uncertainty: 0.1 g



	Indication	Instrument Error	+/- Limits	Results
1	0.2 g	0.2 g	0.8	Pass
2	0.4 g	0.4 g	0.8	Pass
3	0.3 g	0.3 g	0.8	Pass
4	0.4 g	0.4 g	0.8	Pass

Non-Linearity Check: Range: 30000.0 g Uncertainty: 0.1 g

STD Mass Load	Indication	Instrument Error	+/- Limits	Results
0.0 g	0.0 g	0.0 g	0.4	Pass
7500.0 g	7500.0 g	0.0 g	0.4	Pass
15000.0 g	7499.8 g	-0.2 g	0.4	Pass
22500.0 g	7499.9 g	-0.1 g	0.4	Pass
30000.0 g	7499.8 g	-0.2 g	0.4	Pass

Remarks: Readability is 0.1g. Standards used 2060, 2061, 2062, 6098, 1718, and 1715.

END OF REPORT